Newport
Experience | Solutions

Laser Disposal, How & Where

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Spectra-Physics

Laser Disposal

Lasers by their nature can be hazardous in use, but they can also be hazardous to the environment, if they are disposed of improperly. Almost all Laser Systems contain some amount of hazardous materials, which must be disposed of, in compliance with Local, State, and Federal Regulations. In this presentation I will discuss several alternatives for disposing of a Laser System that is no longer needed.

SOME OF THE HAZARDOUS MATERIALS

Generally, the hazardous materials in a Laser System are determined by the Type of laser. All Lasers that utilize electricity as their main energy source, and that were manufactured prior to July 1, 2006, more than likely, will have Lead in their Printed Circuit Boards. Lead is one of the 6 Hazardous Materials outlined in the European Reduction of Hazardous Materials (Rosh) Directive 2002/95/EC. Due to this fact ALL Materials that contain Lead shall be disposed of as Electronic Waste, to insure that the Lead does not leach into the Environment.

SOME OF THE HAZARDOUS MATERIALS

Many High Power Gas Laser Plasma Tubes may contain Beryllium Oxide, a Known Carcinogen. Most reputable Manufactures of these Types of Lasers, have “Take Back” Programs which allow the customer to return these Plasma Tubes, so that they can be disposed of appropriately.

Most Diode based Laser Systems have Laser Diodes which contain Gallium Arsenide or Other Hazardous Materials which also must be disposed of appropriately.Once again, contact the the Manufacturer to see if they have a “Take Back” Program

SOME OF THE HAZARDOUS MATERIALS

Prior to disposal of any commercially available Laser You should contact the Manufacturer to determine if The Laser contains any unique hazardous materials, and get Their recommendations on how those Materials shall appropriately be disposed of.

Disposal of an Operational Laser

If you have a functional Laser System that you no longer need, consider donating it to another DOE Facility that may have a use for it. (Make sure to notify Your site LSO, so it can be removed from your site's Inventory)

If no other DOE Facility can use it, consider donating It to a Local University's Engineering or Physics Department. (In this scenario, make sure to generate A "Limit of Liability" Document, and have the recipient Sign and Date it to absolve your Facility of any Liability associated with it's use)

Disposal of an Operational Laser

Contact the Manufacturer of the Laser and ask if they Would like the Laser back, for refurbishment,usable Components, or possible ETN (Equivalent to New Repair).

There are also several companies that buy and sell used Laser Systems. The last slides in this presentation shows the internet addresses of some of the companies that specialize in the refurbishment of and the resale of Lasers.

Most Universities have policies in place for the disposition/disposal of unneeded Lasers. The next 2 Slides are an excerpt from University of Maryland's Laser transfer/disposal policy.

University of Maryland Laser Disposal Policy

Transfer & Disposal: The PLU is required to notify the LSO of any class 3b or 4 laser or laser system relocated, or transferred to another PLU or institution, or sent offsite as surplus equipment.

Laser users have an obligation to ensure safe and responsible disposition of their unneeded, but potentially hazardous, class 3b or 4 lasers and laser components. Appropriate means of laser disposal include:

1. Donate the laser to an organization (e.g. school, industrial company, hospital) with a need for such a device. The donor should ensure that the donated laser system complies with all applicable product safety standards and is provided with adequate safety instructions for operations and maintenance. The donor should also verify that the receiving organization has a viable laser safety program. The LSO will assist the PLU in verifying viable laser safety programs prior to any transfer, shipment or relocation off-site of the University.

2. Return the laser to the manufacturer, or to a vendor specializing in re-

University of Maryland Laser Disposal Policy

2. Return the laser to the manufacturer, or to a vendor specializing in re-selling used laser equipment.

3. Eliminate the possibility of activating the laser by removing all means by which it can be electrically activated. Once this has happened the laser could then be discarded.

4. Destroy the laser.

The last two methods also require proper removal and disposal of any hazardous materials found inside the laser components, such as mercury switches, oils, dyes, etc. Users should contact the LSO if they need further information or assistance with proper disposal. Terrapin Trader routinely does not accept such devices without approval from the LSO regarding the hazards of the laser and the components themselves.

Dept. of the Navy Laser Transfer/Disposal Form

SECNAVZNST 5100.14D

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SAMPLE FORMAT

TRANSFER/DISPOSAL OF EXEMPT LASER PRODUCTS

From: To: Chief, Bureau of Medical Surgery (M342)

Subj: REQUEST FOR APPROVAL OF TRANSFER/ DISPOSAL OF EXEMPT LASER

1. It is requested that approval be granted to transfer/ dispose of (circle one) the following exempt laser (s) .

*Laser Type

Dept. of the Navy Laser Transfer/Disposal Form

Manufacturer

Contract Number

Serial No. (s)

National Stock Number (if assigned)

Exemption Qualification

Combat Combat Training Classified

To be transferred to:

To be donated or sold to:

For Disposal: Describe methods of demilitarization or re-modification that have been or will be accomplished to bring the laser in compliance with 21 CFR Part 1040 prior to disposal outside DoD.

Dept. of the Navy Laser Transfer/Disposal Form

* Description shall include laser medium, emitted wavelengths, maximum output of laser radiation, pulse duration (when appropriate) and laser class.

Signature

Does the Department of Energy Have an Equivalent Form?

Electronic Waste Recycling of Dead Lasers

Once the decision has been made to dispose of a Laser System the following actions shall be taken Prior to the actual Disposal:

1) Completely disable the laser from ever operating again.
2) Remove any hazardous substances such as Mercury switches, Batterries, Dyes, Oils, ect, and wherever possible recycle them.
3) Remove and separately recycle any Laser Diodes or BeO Plasma Tubes from the Laser.
4) Recycle whatever is left of the Laser with a reputable e-waste recycling facility.
5) Notify your site LSO to have the Laser removed from Inventory.

Companies that Purchase/Refurbish/Sell Used Lasers

Following is a short list of Companies that Purchase Refurbish, and Sell Used Laser Systems

http://www.evergreenlaser.com/

http://www.laserlabs.com/index.php

http://www.midwest-laser.com/index.html

http://www.cambridgelasers.com/home.html

http://www.lasershs.com/ion_laser_repair_refurbishment.htm

How to find an Electronic Waste Recycler

The URLs below are links for the International Association of Electronics Recyclers, and other e-waste Organizations On these pages You can search for Electronic Waste Recyclers in Your Area

http://www.iaer.org/search/iaersearch.cfm

http://www.americanewasterecyclers.com/

http://www.epa.gov/osw/conserve/materials/ecycling/

http://electronicrecyclers.com/

Thank You for Your Attention

QUESTIONS?